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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

I hereby certify that this paper is being deposited on this date with the U.S. Postal Service as first class mail addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Signature: Lisa L. Vulpis Date: September 29, 2005

Applicant(s): Bagga et al.
Case: 1-1-1-1-1-1-1-1-3-1
Serial No.: 09/520,133
Filing Date: March 7, 2000
Group: 2143
Examiner: Alina N. Boutah

Title: Inter-Domain Network Management System For Multi-Layer Networks

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TRANSMITTAL OF SUPPLEMENTAL APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith are the following documents relating to the above-identified patent application:

(1) Response to Office Action; and
(2) Supplemental Appeal Brief.

There is no additional fee due in conjunction with the response. In the event of non-payment or improper payment of a required fee, the Commissioner is authorized to charge or to credit **Ryan, Mason & Lewis, LLP Deposit Account No. 50-0762** as required to correct the error.

Respectfully submitted,

Joseph B. Ryan

Date: September 29, 2005

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RESPONSE TO OFFICE ACTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated July 1, 2005 in the above-referenced application, Applicants hereby request reinstatement of the appeal. A Supplemental Appeal Brief is submitted concurrently herewith.

Respectfully submitted,

Joseph B. Ryan

Date: September 29, 2005

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SUPPLEMENTAL APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Supplemental Appeal Brief is submitted in response to the Office Action dated July 1, 2005 in the above-referenced application, in which the Examiner reopened prosecution in response to the Appeal Brief filed March 21, 2005.

Applicants have submitted concurrently herewith a response to the Office Action, requesting reinstatement of the appeal.

REAL PARTY IN INTEREST

The present application is assigned to Lucent Technologies Inc., as evidenced by an assignment recorded July 14, 2000 in the U.S. Patent and Trademark Office at Reel 010924, Frame 0344. The assignee Lucent Technologies Inc. is the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences.

STATUS OF CLAIMS

The present application was filed on March 7, 2000, with claims 1-19, and claims the priority of a provisional application filed July 30, 1999. Claims 1-19 are currently pending in the present application. Claims 1, 18 and 19 are the independent claims.

Each of claims 1-19 stands finally rejected under 35 U.S.C. §103(a). Claims 1-19 are appealed.

STATUS OF AMENDMENTS

There have been no amendments filed subsequent to the final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

Independent claims 1, 18 and 19 are directed to a network management system, a method of implementing a network management system, and a machine-readable medium storing one or more software programs for use in implementing a network management system, respectively. In each of the claims, the network management system comprises an inter-domain configuration manager arranged between a set of one or more network service management applications and a plurality of network element domain managers, with each of the domain managers being associated with a particular architectural or technological domain of a multi-layer network. The inter-domain configuration manager implements network service design and provisioning functions across a plurality of the domains of the network in conjunction with stored connectivity information characterizing the multi-layer network. The claims further specify that the inter-domain configuration manager comprises an inter-domain tree manager, with the inter-domain tree manager comprising a logical tree manager. The logical tree manager is operative to manage a transport service and facility hierarchy associated with the multi-layer network, and to maintain corresponding parent-child relationships in one or more tree structures that reference the domains containing real-time network details associated with the transport service and facility hierarchy.

An illustrative embodiment of the invention is shown in FIG. 2 of the drawings and includes inter-domain configuration manager 210, arranged between a set of service management layer applications 250, and a set of domain management systems 240. The inter-domain configuration manager 210 comprises an inter-domain tree manager 212, which in turn comprises a logical tree manager that interfaces with a connectivity database 290.

As shown in FIG. 8, the logical tree manager 310 is coupled to connectivity database 290 and to a view manager 312 of the inter-domain tree manager 212. The logical tree manager 310 is responsible for managing an end-to-end transport service and facility hierarchy, and it performs this function at least in part by maintaining parent-child relationships in a tree structure that references the domains that contain the real-time network details. See the specification at page 7, line 9, to page 8, line 20. FIG. 5 shows a particular example of a tree structure maintained using logical tree manager 310 for a given end-to-end transport service. This exemplary tree structure is maintained for a DS1 message trunk provisioned in the multi-layer network 400 of FIG. 4. See the specification at page 8, line 24, to page 9, line 17.

The illustrative embodiment provides a number of advantages over conventional network management systems. For example, this embodiment allows service providers in the telecommunications industry to achieve quick introduction of new services, expedited service implementation, prompt fault resolution, and service capacity management capabilities not available in prior art multi-layer network environments.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over M. Mortensen, "Operations Architecture for Data-Centric Converged Telecommunications Networks: Lucent Technologies' Open Operations CORBA Architecture," Lucent Network and Services Management White Paper, pp. 1-10, 1999 (hereinafter "the Mortensen reference"), in view of U.S. Patent No. 6,289,201 (hereinafter "Weber") and in further view of U.S. Patent No. 6,654,759 (hereinafter "Brunet").

ARGUMENT

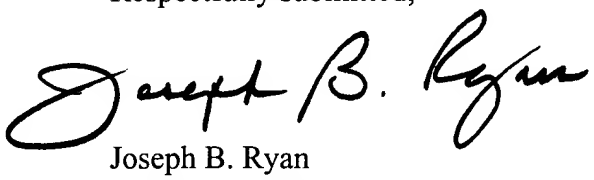
Claims 1-19

Applicants respectfully traverse the §103(a) rejection on the ground that the Brunet reference is not prior art relative to the present application. The Brunet reference has a filing date of November 27, 2000, and claims foreign priority to a French application filed November 26, 1999. As noted above, the present application was filed March 7, 2000, and claims priority to a provisional application filed July 30, 1999. Accordingly, Brunet is not prior art relative to the present application. The §103(a) rejection is therefore clearly improper, and should be withdrawn.

Applicants are surprised and disappointed to see such a rejection appear subsequent to the filing of their initial Appeal Brief. It is a departure from the normally high quality of service provided by the U.S. Patent and Trademark Office.

In view of the above, Applicants believe that claims 1-19 are in condition for allowance, and respectfully request the withdrawal of the §103(a) rejection.

Respectfully submitted,



Date: September 29, 2005

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CLAIMS APPENDIX

1. A network management system comprising:

an inter-domain configuration manager arranged between a set of one or more network service management applications and a plurality of network element domain managers, each of the domain managers being associated with a particular architectural or technological domain of a multi-layer network, the configuration manager implementing network service design and provisioning functions across a plurality of the domains of the network in conjunction with stored connectivity information characterizing the multi-layer network;

wherein the inter-domain configuration manager further comprises an inter-domain tree manager, the inter-domain tree manager comprising a logical tree manager operative to manage a transport service and facility hierarchy associated with the multi-layer network, and to maintain corresponding parent-child relationships in one or more tree structures that reference the domains containing real-time network details associated with the transport service and facility hierarchy.

2. The system of claim 1 wherein the inter-domain configuration manager is interfaced to at least one of the set of network service management applications and the plurality of network element domain managers through a published Common Object Request Broker Architecture (CORBA) Application Programming Interface (API).

3. The system of claim 1 wherein the set of one or more network service management applications comprise one or more of an order manager, a trouble manager, a billing manager, a customer service manager, and a service level reporter.

4. The system of claim 1 wherein the domains of the multi-layer network comprise one or more of a circuit-switched domain, an Internet Protocol (IP) domain, an Asynchronous Transfer Mode (ATM domain, a Frame Relay (FR) domain, a Synchronous Digital Hierarchy (SDH) domain, a Synchronous Optical Network (SONET) domain, and an optical domain.

5. The system of claim 1 wherein the inter-domain configuration manager provides single-point access to provisioning functions in a manner which is independent of the corresponding domains.

6. The system of claim 1 wherein the inter-domain configuration manager provides single-point access to end-to-end views of services and their underlying infrastructure, down to a physical layer of the multi-layer network, in a manner which is independent of the corresponding domains.

7. The system of claim 1 wherein the inter-domain configuration manager further comprises an inter-domain provisioning manager.

8. The system of claim 1 wherein the inter-domain tree manager maintains an end-to-end view of planned and provisioned transport services and facilities for the multi-layer network.

9. The system of claim 1 wherein the inter-domain tree manager further comprises a view manager, and a connectivity database for storing the connectivity information characterizing the multi-layer network.

10. The system of claim 1 wherein the logical tree manager manages an end-to-end transport service and facility hierarchy, and maintains corresponding parent-child relationships in one or more tree structures that reference the domains containing real-time network details associated with the end-to-end transport service and facility hierarchy.

11. The system of claim 9 wherein the view manager provides a plurality of different presentations of the network connectivity information, and provides a particular presentation associated with a tree structure stored by the logical tree manager upon receipt of a request for such a presentation.

12. The system of claim 7 wherein the inter-domain provisioning manager provides provisioning of services and facilities across the multiple domains.

13. The system of claim 7 wherein the inter-domain provisioning manager comprises an end-to-end design manager and an implementation manager.

14. The system of claim 13 wherein the end-to-end design manager provides network service design capabilities across the plurality of domains, utilizing a set of design rules for inter-domain connectivity, and coordinates designs among the domains in the particular inter-domain path.

15. The system of claim 13 wherein the implementation manager coordinates the implementation of an end-to-end network service design across the plurality of domains.

16. The system of claim 1 further comprising an inter-domain fault manager associated with the inter-domain configuration manager and arranged between at least a subset of the network service management applications and at least a subset of the plurality of network element domain managers, the inter-domain fault manager providing fault management functions across the plurality of domains of the network.

17. The system of claim 1 further comprising an inter-domain capacity manager associated with the inter-domain configuration manager and arranged between at least a subset of the network service management applications and at least a subset of the plurality of network element domain managers, the inter-domain capacity manager providing management of transport capacity across the multi-layer network.

18. A method of implementing a network management system, the method comprising the steps of:

providing an inter-domain configuration manager arranged between a set of one or more network service management applications and a plurality of network element domain managers, each of the domain managers being associated with a particular architectural or technological domain of a multi-layer network; and

utilizing the inter-domain configuration manager to implement network service design and provisioning functions across a plurality of the domains of the network in conjunction with stored connectivity information characterizing the multi-layer network;

wherein the inter-domain configuration manager further comprises an inter-domain tree manager, the inter-domain tree manager comprising a logical tree manager operative to manage

a transport service and facility hierarchy associated with the multi-layer network, and to maintain corresponding parent-child relationships in one or more tree structures that reference the domains containing real-time network details associated with the transport service and facility hierarchy.

19. A machine-readable medium storing one or more software programs for use in implementing a network management system, the one or more software programs when executed providing an inter-domain configuration manager arranged so as to interface with a set of one or more network service management applications and a plurality of network element domain managers, each of the domain managers being associated with a particular architectural or technological domain of a multi-layer network, the inter-domain configuration manager implementing network service design and provisioning functions across a plurality of the domains of the network in conjunction with stored connectivity information characterizing the multi-layer network;

wherein the inter-domain configuration manager further comprises an inter-domain tree manager, the inter-domain tree manager comprising a logical tree manager operative to manage a transport service and facility hierarchy associated with the multi-layer network, and to maintain corresponding parent-child relationships in one or more tree structures that reference the domains containing real-time network details associated with the transport service and facility hierarchy.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None